FIG.1

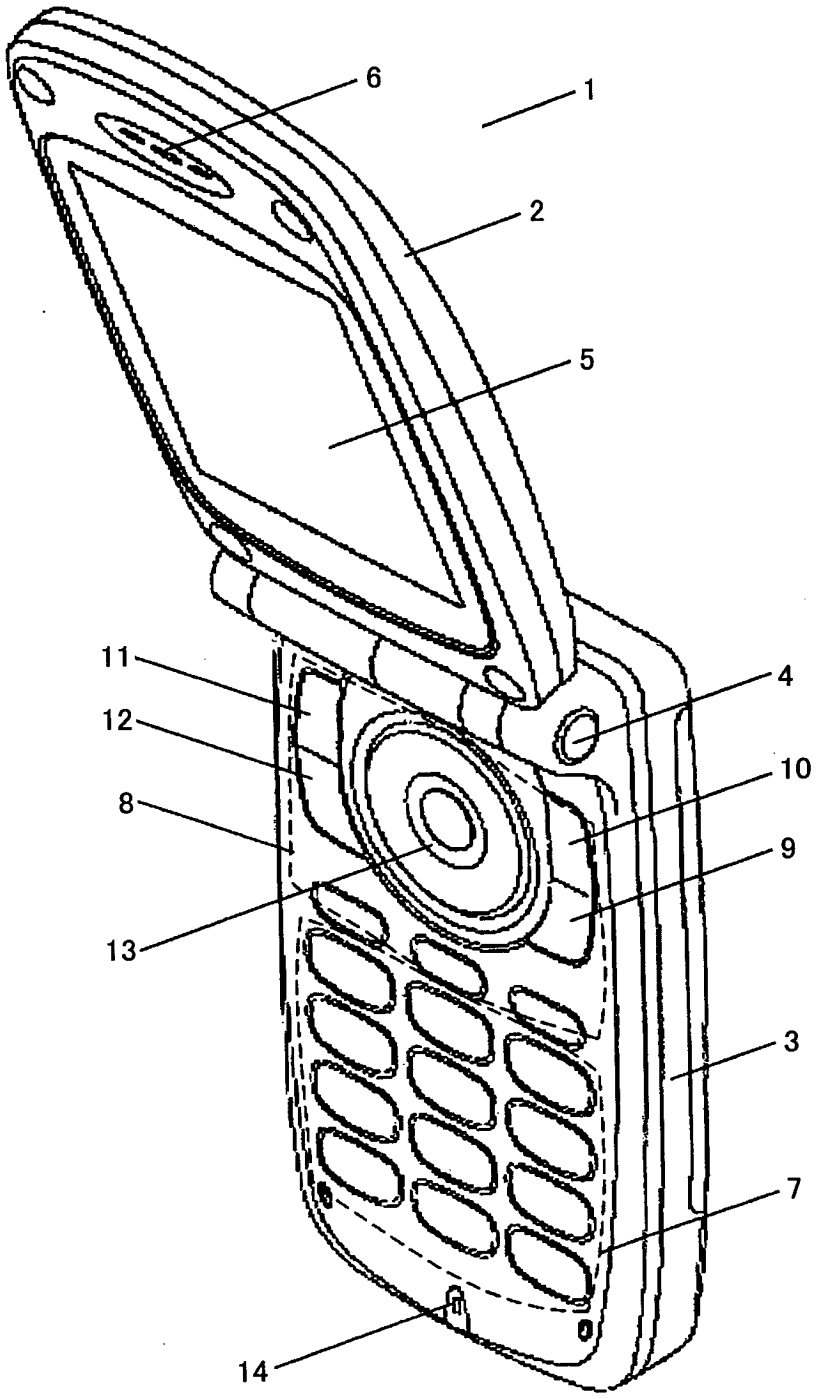

FIG.2

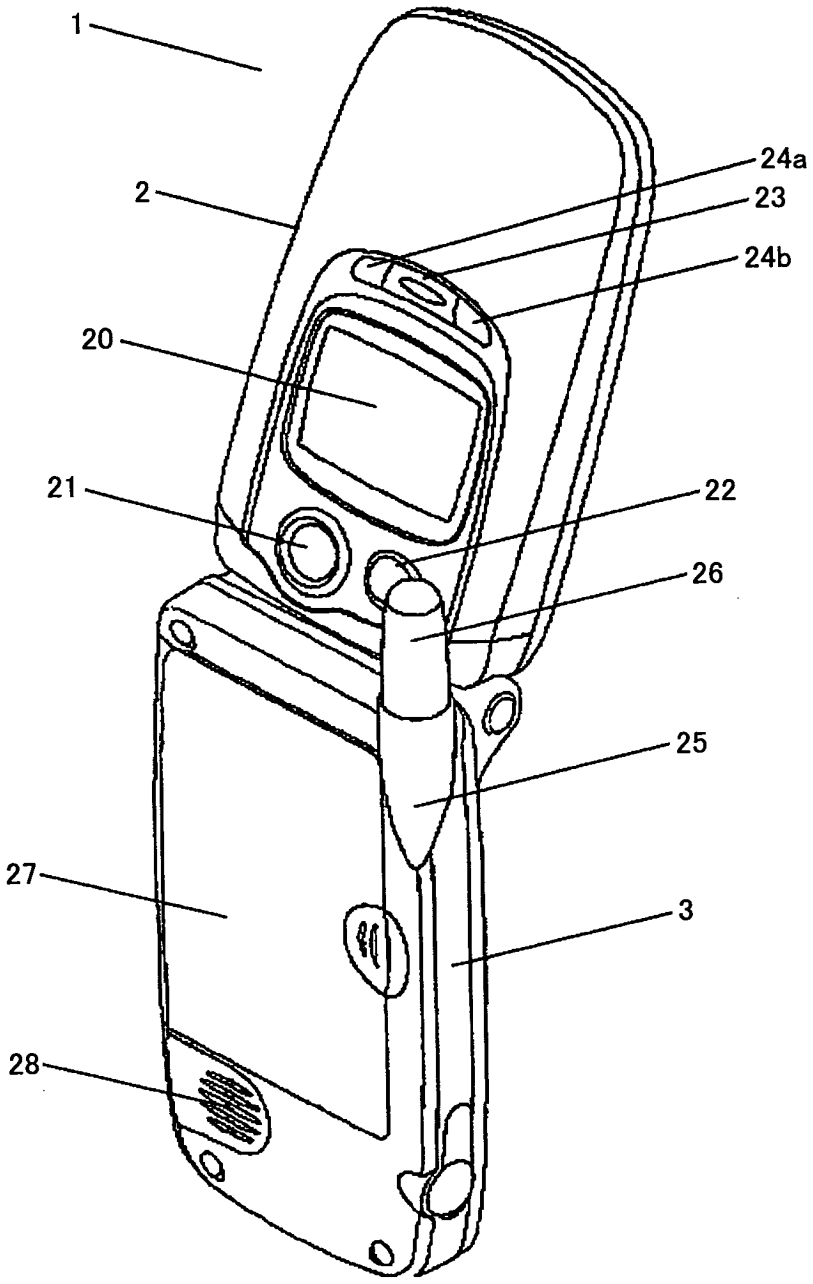

FIG.3

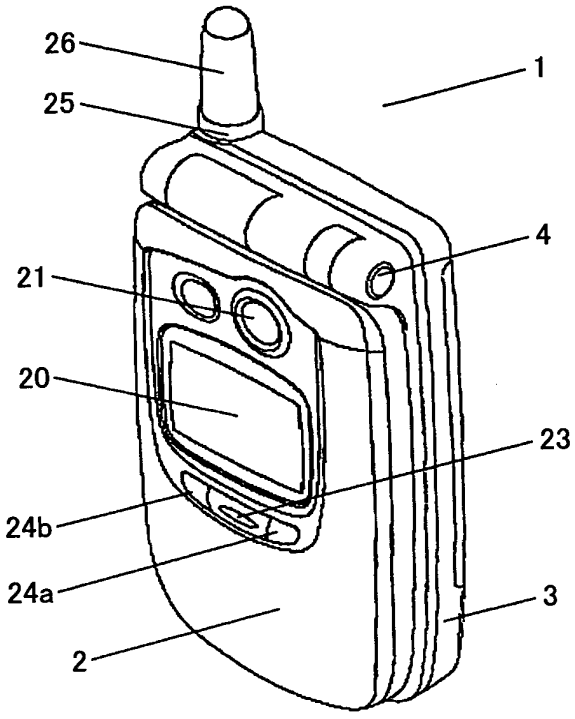

FIG.4

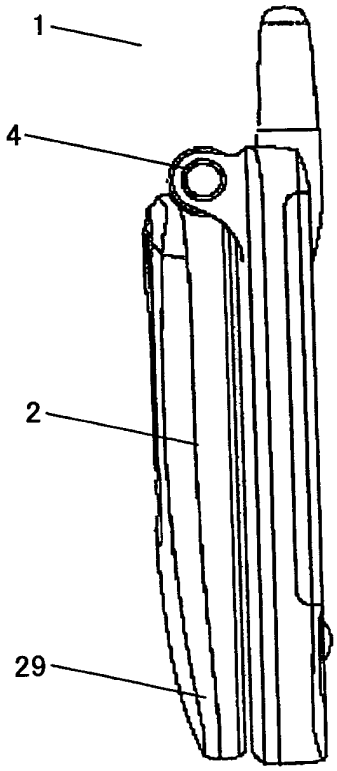

FIG.5A

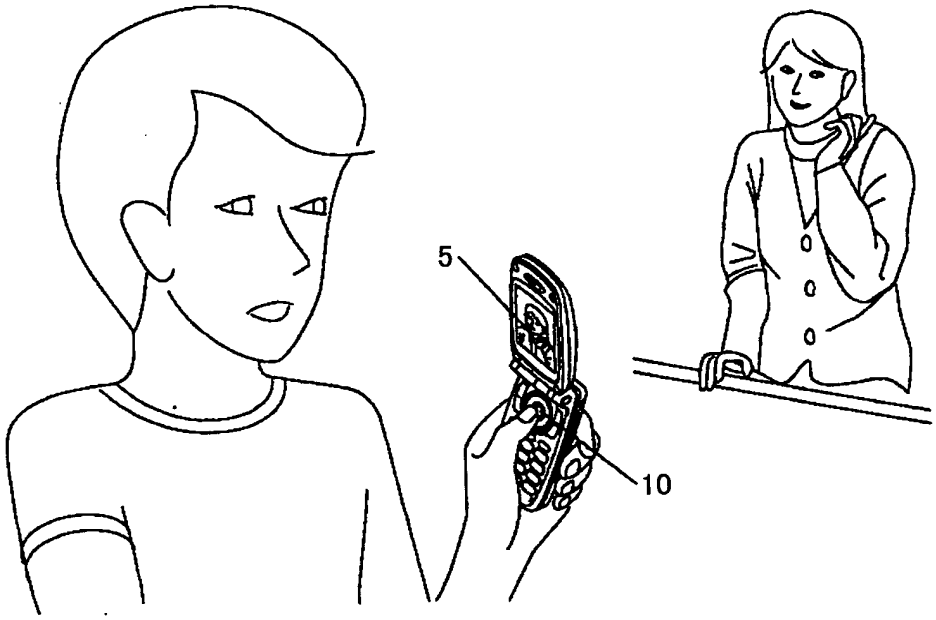

FIG.5B

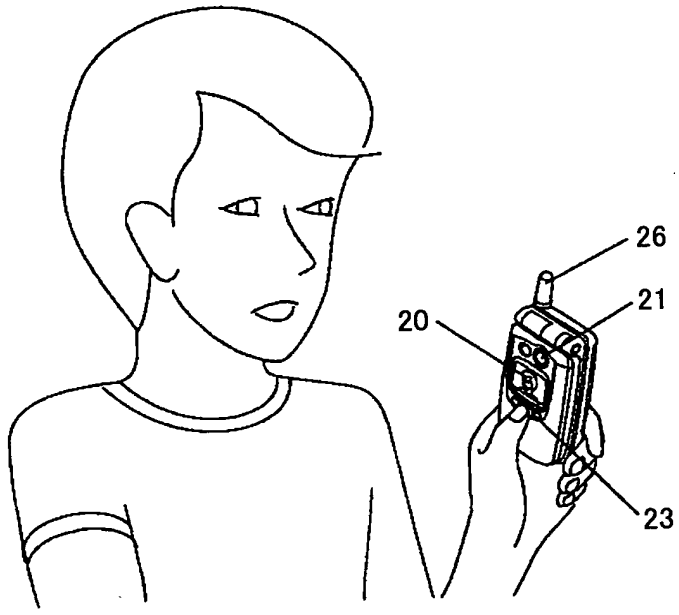

FIG.6

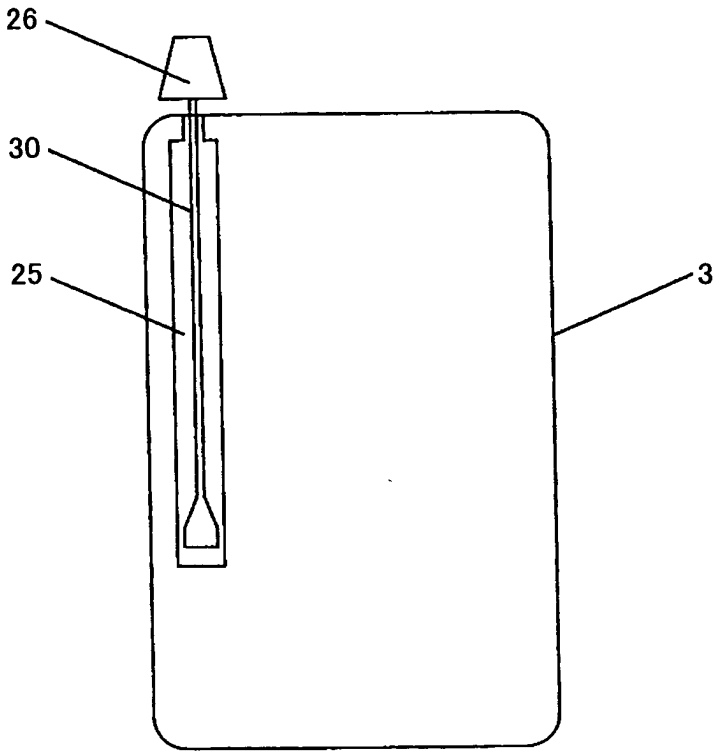

FIG.7A

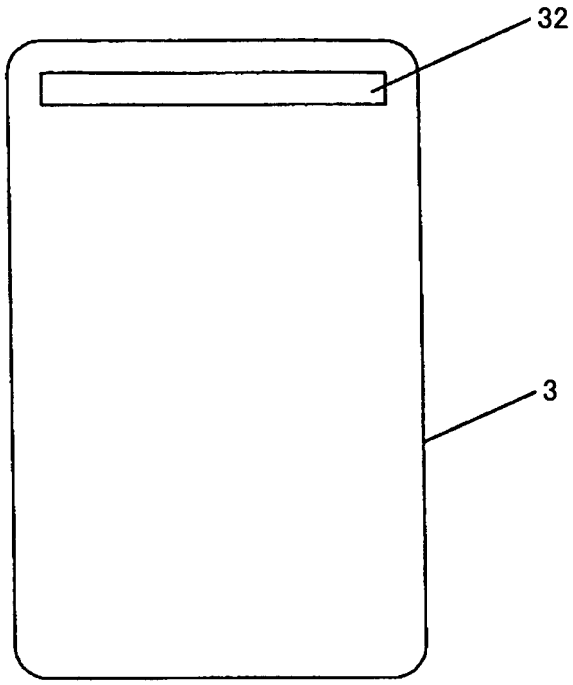

FIG.7B

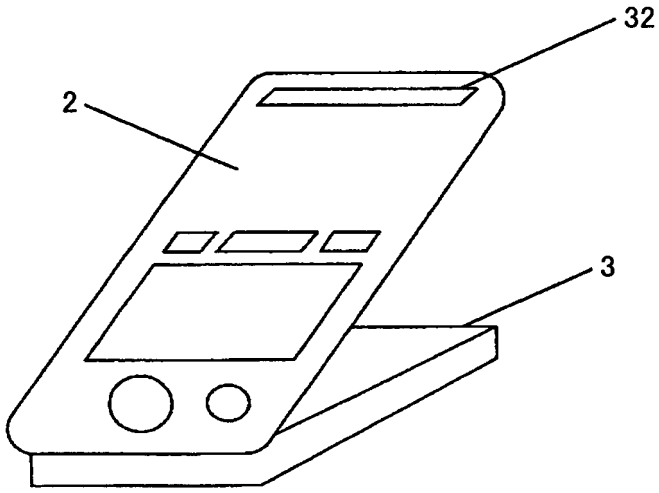

FIG.8

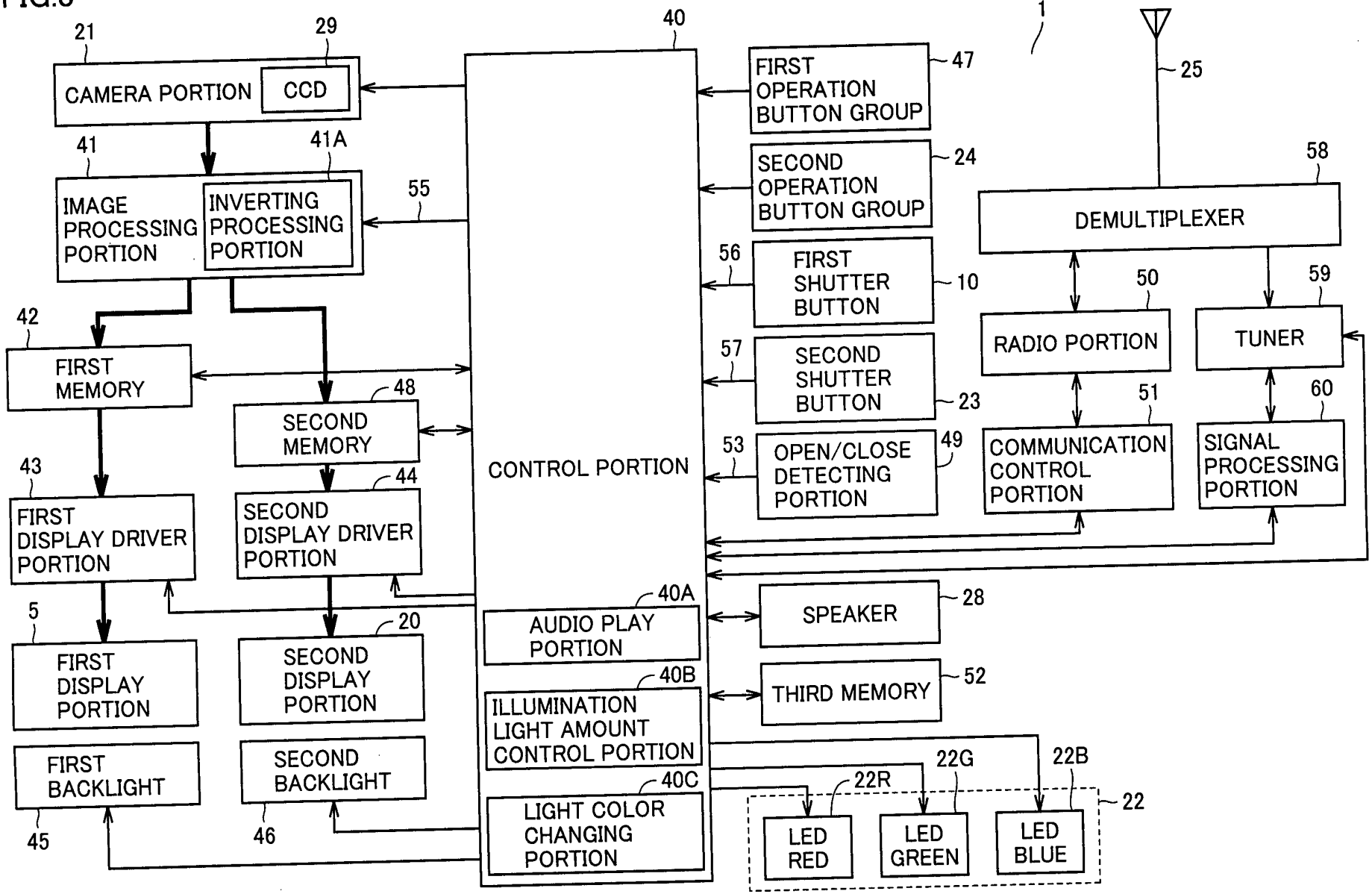
21
29
CAMERA PORTION
CCD
41
41A
IMAGE PROCESSING PORTION
INVERTING PROCESSING PORTION
55
42
FIRST MEMORY
48
SECOND MEMORY
43
44
FIRST DISPLAY DRIVER PORTION
SECOND DISPLAY DRIVER PORTION
5
20
FIRST DISPLAY PORTION
SECOND DISPLAY PORTION
FIRST BACKLIGHT
SECOND BACKLIGHT
45
46
40
CONTROL PORTION
40A
AUDIO PLAY PORTION
40B
ILLUMINATION LIGHT AMOUNT CONTROL PORTION
40C
LIGHT COLOR CHANGING PORTION
1
47
FIRST OPERATION BUTTON GROUP
24
SECOND OPERATION BUTTON GROUP
56
FIRST SHUTTER BUTTON
10
57
SECOND SHUTTER BUTTON
23
53
OPEN/CLOSE DETECTING PORTION
49
25
58
DEMULTIPLEXER
50
59
RADIO PORTION
TUNER
51
60
COMMUNICATION CONTROL PORTION
SIGNAL PROCESSING PORTION
28
SPEAKER
52
THIRD MEMORY
22
22R
22G
22B
LED RED
LED GREEN
LED BLUE

FIG.9

MODE	STATE	PRESSING TIME	24b: 2nd OPERATION BUTTON	23: SHUTTER BUTTON	24a: 2nd OPERATION BUTTON
ORDINARY MODE	STANDBY	STANDARD	LIGHT ON	TO MENU SCREEN	PICT. ON/OFF
		LONG	LIGHT ON/OFF	ACTIVATE CAMERA	KEY LOCK
	MENU SCREEN	STANDARD	SELECT (BWD.)	DECIDE	SELECT (FWD.)
	WALLPAPER SETTING	STANDARD	DISPLAY OLD IMAGE (BWD.)	DECIDE → END DISPLAY	DISPLAY NEW IMAGE (FWD.)
	IMAGE CHECK	STANDARD	DISPLAY OLD IMAGE (BWD.)	END DISPLAY	DISPLAY NEW IMAGE (FWD.)
	LIGHT AMOUNT	STANDARD	DIM	DECIDE → END DISPLAY	BRIGHT
		LONG	LIGHT OFF	–	–
	LIGHT COLOR	STANDARD	SELECT (BWD.)	DECIDE → END DISPLAY	SELECT (FWD.)
		LONG	LIGHT OFF	–	–
	INCOMING CALL	STANDARD	OLD CALL (BWD.)	END DISPLAY	NEW INCOMING CALL (FWD.)
	MAIL ARRIVAL	STANDARD	OLD MAIL (BWD.)	DISPLAY MAIL DETAILS	NEW INCOMING MAIL (FWD.)
		LONG	–	END DISPLAY	–
	TV CH SELECT	STANDARD	CH DOWN	CONTROL VOLUME	CH UP
	MP3 PLAY	STANDARD	BACKWARD	CONTROL VOLUME	FAST FWD.
		LONG	PREVIOUS SONG	PLAY/STOP	NEXT SONG
	VOLUME	STANDARD	SMALL	CH SELECT/MP3	UP
CAMERA MODE	STARTUP	STANDARD	LIGHT COLOR CHANGE	SHUTTER OPERATION	SET SELECTION
		LONG	LIGHT ON/OFF	END CAMERA MODE	–
	AFTER-SHOOTING	STANDARD	IMAGE ERASING	SAVE	–
	SETTING SELECTION	STANDARD	–	DECIDE	–
	ZOOM CONTROL	STANDARD	ZOOM OUT	DECIDE → END DISPLAY	ZOOM IN
	BRIGHTNESS CONTROL	STANDARD	DIM	DECIDE → END DISPLAY	BRIGHT
	LIGHT AMOUNT	STANDARD	DIM	DECIDE → END DISPLAY	BRIGHT
		LONG	LIGHT OFF	–	–
	LIGHT COLOR	STANDARD	SELECT (BWD.)	DECIDE → END DISPLAY	SELECT (FWD.)
		LONG	LIGHT OFF	–	–

FIG.10

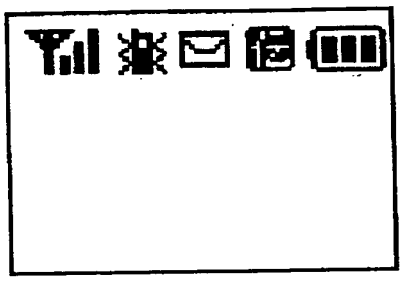

FIG.11A

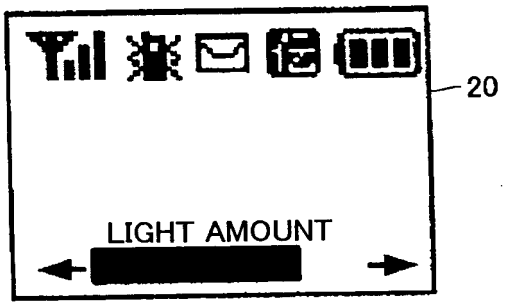

FIG.11B

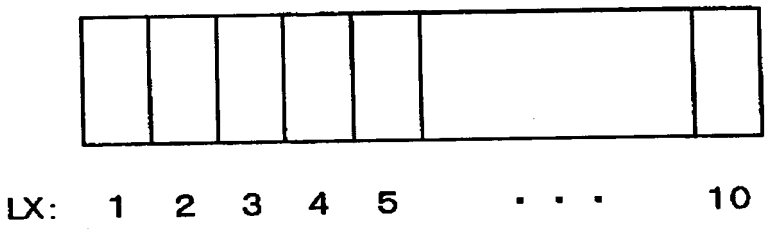

FIG.12

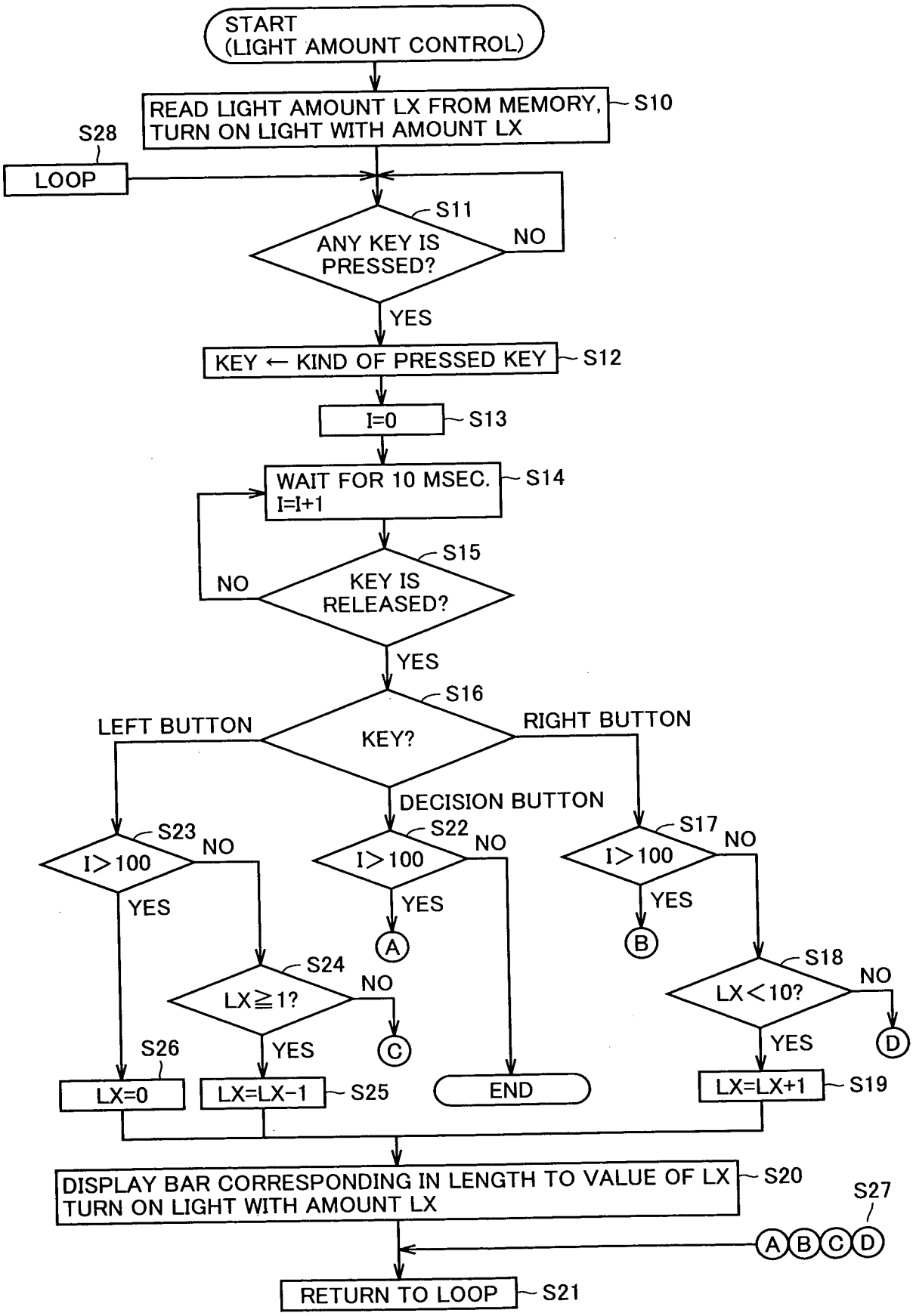
START
(LIGHT AMOUNT CONTROL)
READ LIGHT AMOUNT LX FROM MEMORY,
TURN ON LIGHT WITH AMOUNT LX
S10
S28
LOOP
S11
ANY KEY IS PRESSED?
NO
YES
KEY ← KIND OF PRESSED KEY
S12
I=0
S13
WAIT FOR 10 MSEC.
I=I+1
S14
S15
KEY IS RELEASED?
NO
YES
S16
KEY?
LEFT BUTTON
RIGHT BUTTON
DECISION BUTTON
S23
I>100
NO
YES
S22
I>100
NO
YES
A
S17
I>100
NO
YES
B
S24
LX≧1?
NO
YES
C
S18
LX<10?
NO
YES
D
S26
LX=0
LX=LX-1
S25
END
LX=LX+1
S19
DISPLAY BAR CORRESPONDING IN LENGTH TO VALUE OF LX
TURN ON LIGHT WITH AMOUNT LX
S20
S27
A B C D
RETURN TO LOOP
S21

FIG.13

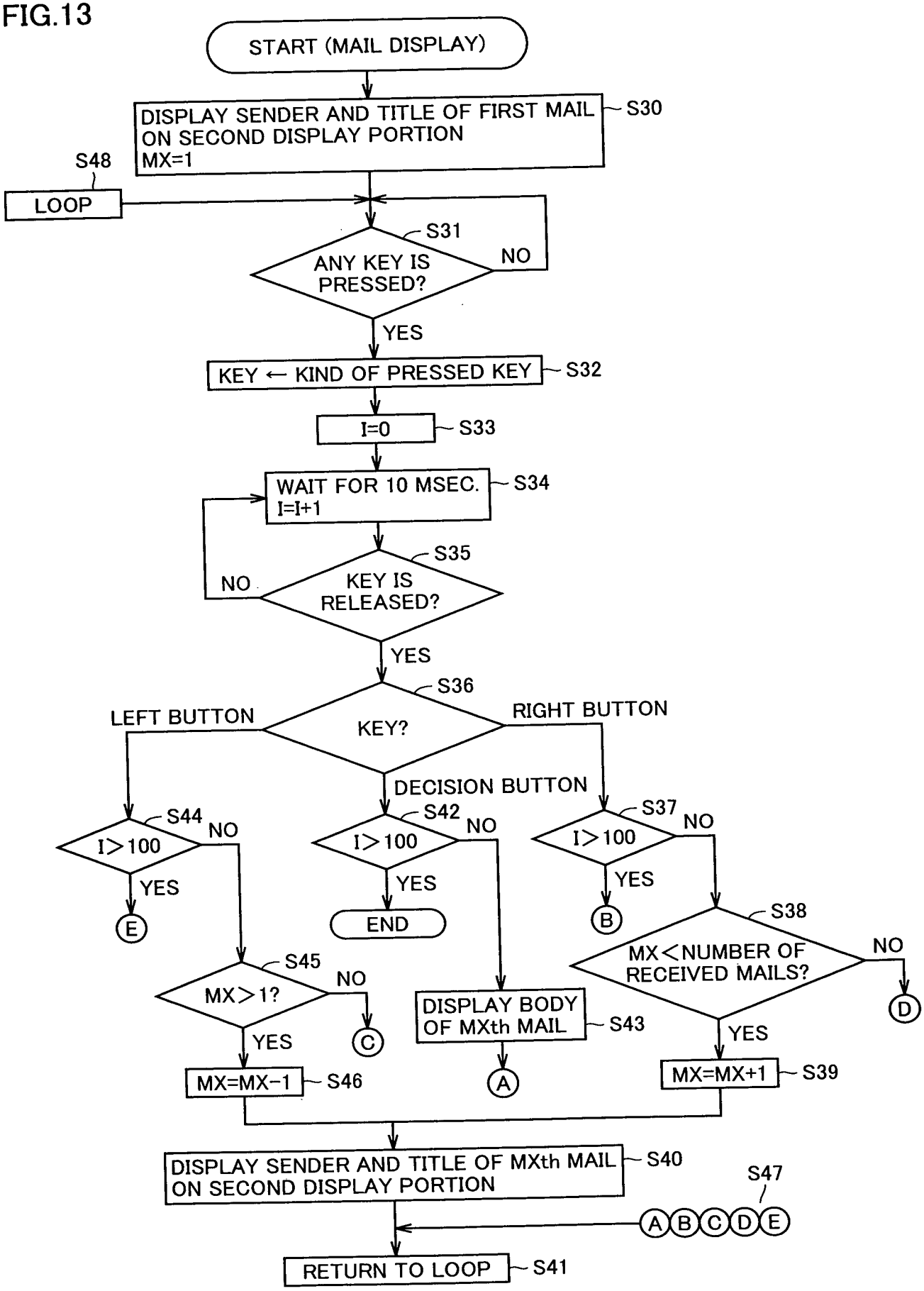
START (MAIL DISPLAY)
DISPLAY SENDER AND TITLE OF FIRST MAIL ON SECOND DISPLAY PORTION
MX=1
S30
S48
LOOP
S31
ANY KEY IS PRESSED?
NO
YES
KEY ← KIND OF PRESSED KEY
S32
I=0
S33
WAIT FOR 10 MSEC.
I=I+1
S34
S35
KEY IS RELEASED?
NO
YES
S36
KEY?
LEFT BUTTON
DECISION BUTTON
RIGHT BUTTON
S44
I>100
NO
YES
E
S42
I>100
NO
YES
END
S37
I>100
NO
YES
B
S45
MX>1?
NO
YES
C
MX=MX-1
S46
DISPLAY BODY OF MXth MAIL
S43
A
S38
MX<NUMBER OF RECEIVED MAILS?
NO
YES
D
MX=MX+1
S39
DISPLAY SENDER AND TITLE OF MXth MAIL ON SECOND DISPLAY PORTION
S40
S47
A B C D E
RETURN TO LOOP
S41

FIG.14

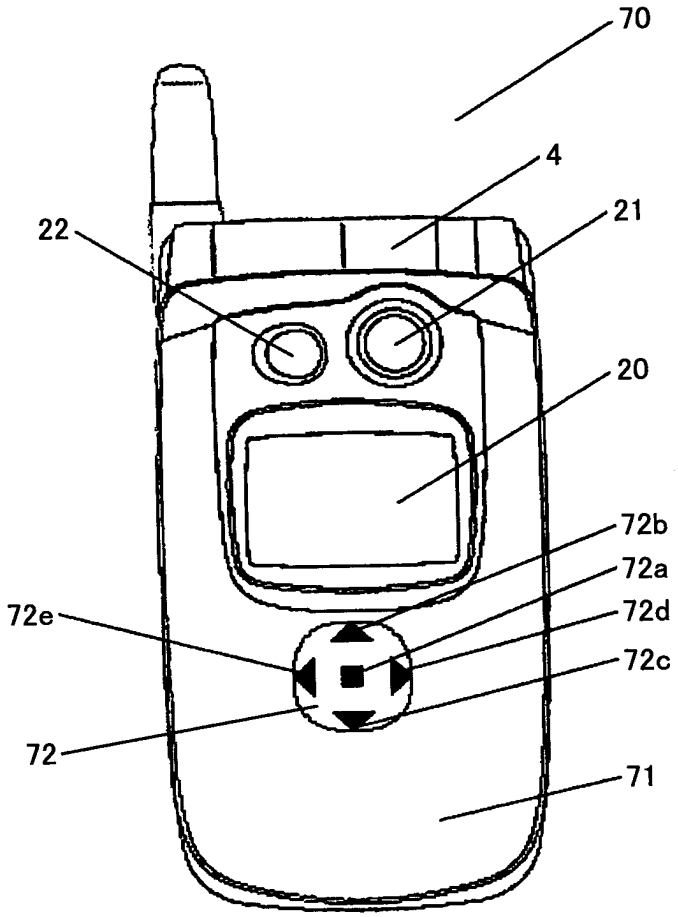

FIG.15

MODE	STATE		72e: LEFT BUTTON	72a: DECISION BUTTON	72d: RIGHT BUTTON
ORDINARY MODE	STANDBY	72b : ↑ UP/DOWN BUTTON ↓ : 72c	KEY LOCK	-	PICT. ON/OFF
	LIGHT		OFF	-	ON
	WALLPAPER SETTING		DISPLAY OLD IMAGE	DECIDE	DISPLAY NEW IMAGE
	IMAGE CHECK		DISPLAY OLD IMAGE	END DISPLAY	DISPLAY NEW IMAGE
	LIGHT AMOUNT		DIM	DECIDE	BRIGHT
	LIGHT COLOR		SELECT (BWD.)	DECIDE	SELECT (FWD.)
	INCOMING CALL		OLD CALL	END DISPLAY	NEW INCOMING CALL
	MAIL ARRIVAL		OLD MAIL	DISPLAY MAIL DETAILS	NEW INCOMING MAIL
	TV CH SELECT		CH DOWN	CONTROL VOLUME	CH UP
	MP3 PLAY		BACKWARD	CONTROL VOLUME	FAST FWD.
			PREVIOUS SONG (LONG PRESS)	PLAY/STOP (LONG PRESS)	NEXT SONG (LONG PRESS)
	VOLUME		SMALL	CH SELECT/MP3 PLAY	UP
	END SETTING		-	END SETTING	-
CAMERA MODE	STARTUP	72b : ↑ UP/DOWN BUTTON ↓ : 72c	-	SHUTTER OPERATION	-
				END CAMERA MODE (LONG PRESS)	
	LIGHT		OFF	-	ON
	ZOOM CONTROL		ZOOM OUT	-	ZOOM IN
	BRIGHTNESS CONTROL		DIM	-	BRIGHT
	LIGHT AMOUNT		DIM	-	BRIGHT
	LIGHT COLOR		SELECT (BWD.)	-	SELECT (FWD.)

FIG.16

MODE	STATE		72e: LEFT BUTTON	72a: DECISION BUTTON	72d: RIGHT BUTTON
ORDINARY MODE	STANDBY	72b ⋮ ↑ UP/DOWN BUTTON ↓ ⋮ 72c	KEY LOCK	-	PICT. ON/OFF
	LIGHT		OFF	-	ON
	WALLPAPER SETTING		DISPLAY OLD IMAGE	DECIDE	DISPLAY NEW IMAGE
	IMAGE CHECK		DISPLAY OLD IMAGE	END DISPLAY	DISPLAY NEW IMAGE
	LIGHT AMOUNT		DIM	DECIDE	BRIGHT
	LIGHT COLOR		SELECT (BWD.)	DECIDE	SELECT (FWD.)
	INCOMING CALL		OLD CALL	END DISPLAY	NEW INCOMING CALL
MAIL DISPLAY MODE			OLD MAIL	DISPLAY MAIL DETAILS	NEW INCOMING MAIL
			UP BUTTON 72b: SCROLL DOWN		DOWN BUTTON 72c: SCROLL UP
TV MODE			CH DOWN	-	CH UP
			UP BUTTON 72b: VOLUME UP		DOWN BUTTON 72c: VOLUME DOWN
MP3 PLAY MODE			BACKWARD	PLAY/STOP (LONG PRESS)	FAST FWD.
			PREVIOUS SONG (LONG PRESS)		NEXT SONG (LONG PRESS)
			UP BUTTON 72b: VOLUME UP		DOWN BUTTON 72c: VOLUME DOWN
CAMERA MODE	STARTUP	72b ⋮ ↑ UP/DOWN BUTTON ↓ ⋮ 72c	-	SHUTTER OPERATION	-
				END CAMERA MODE (LONG PRESS)	
	LIGHT		OFF	-	ON
	ZOOM CONTROL		ZOOM OUT	-	ZOOM IN
	BRIGHTNESS CONTROL		DIM	-	BRIGHT
	LIGHT AMOUNT		DIM	-	BRIGHT
	LIGHT COLOR		SELECT (BWD.)	-	SELECT (FWD.)

FIG.17 PRIOR ART

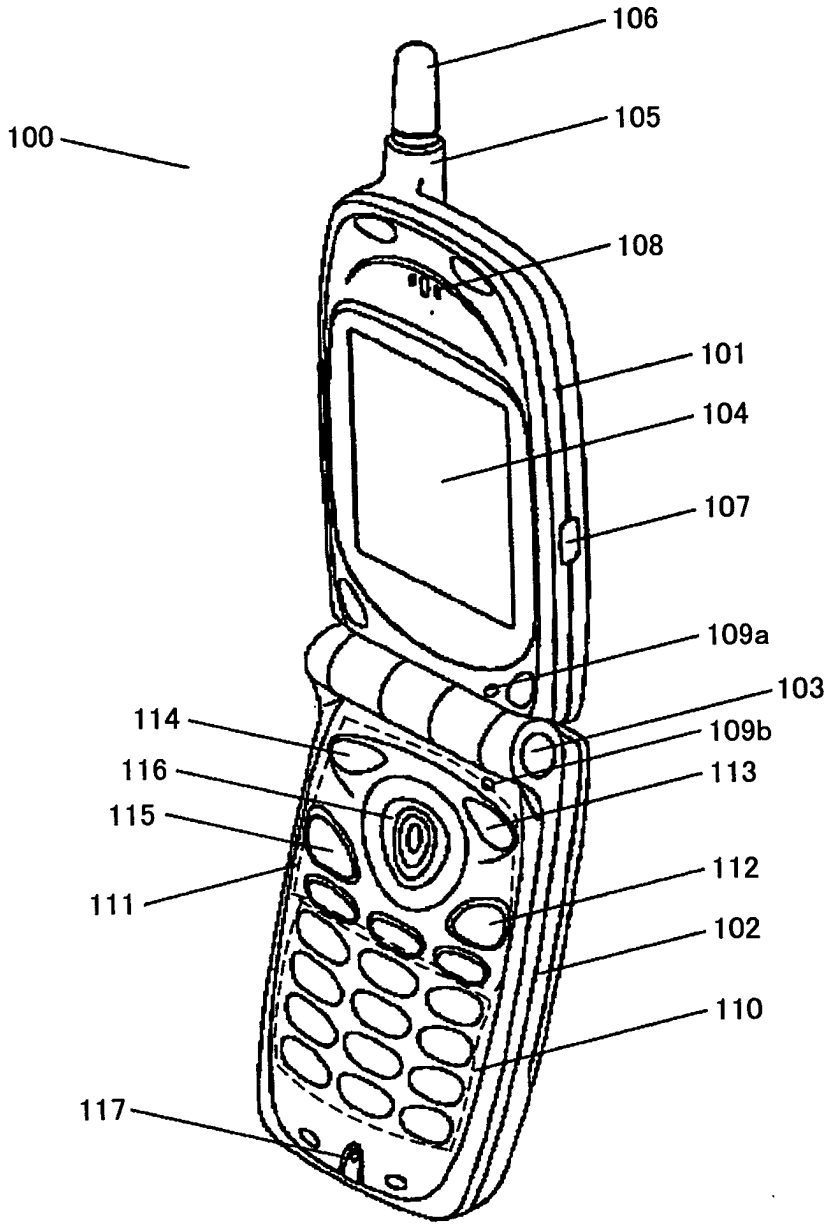

FIG.18 PRIOR ART

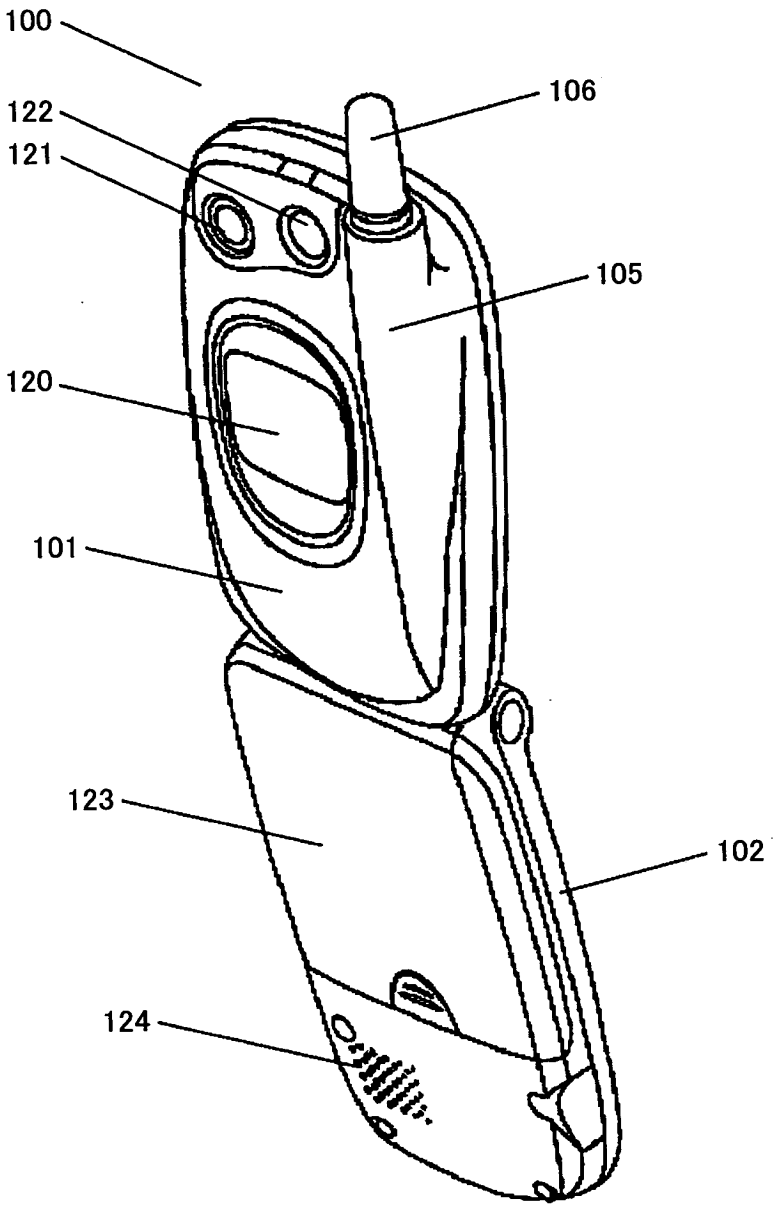

FIG.19 PRIOR ART

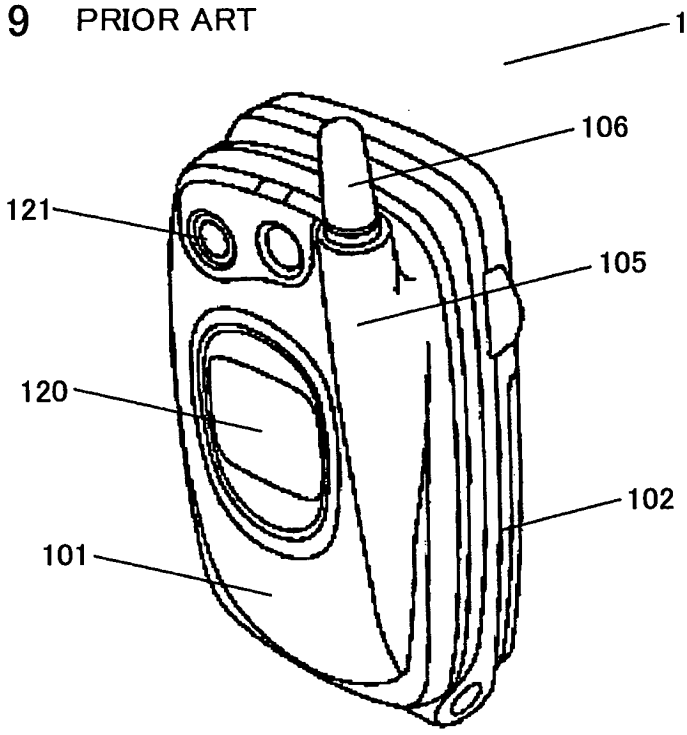

FIG.20 PRIOR ART

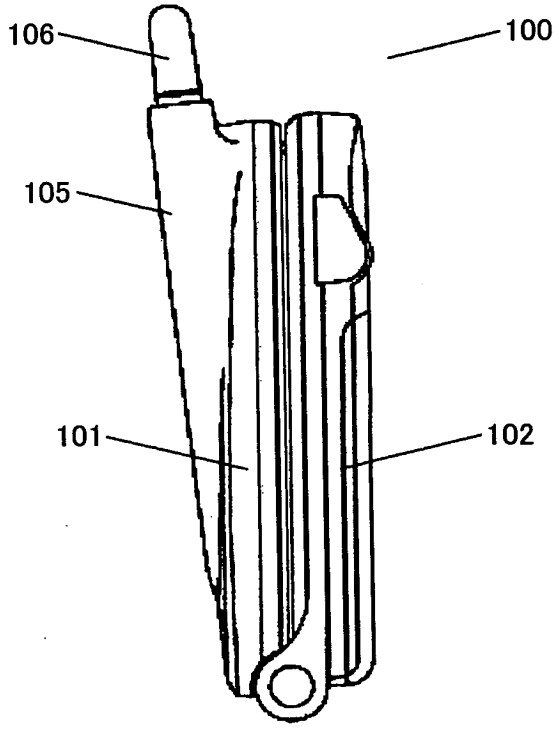

FIG.21A PRIOR ART

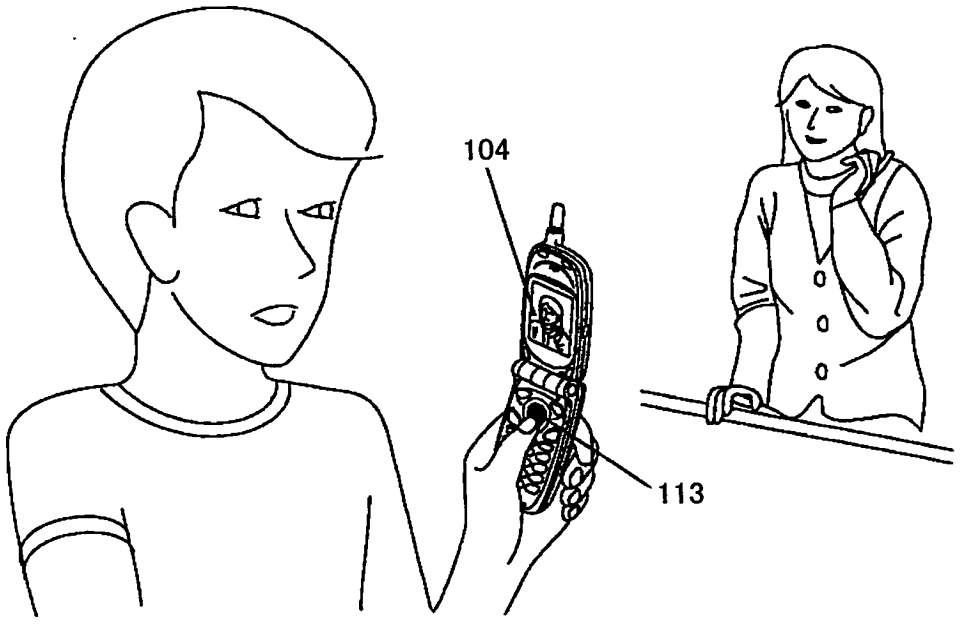
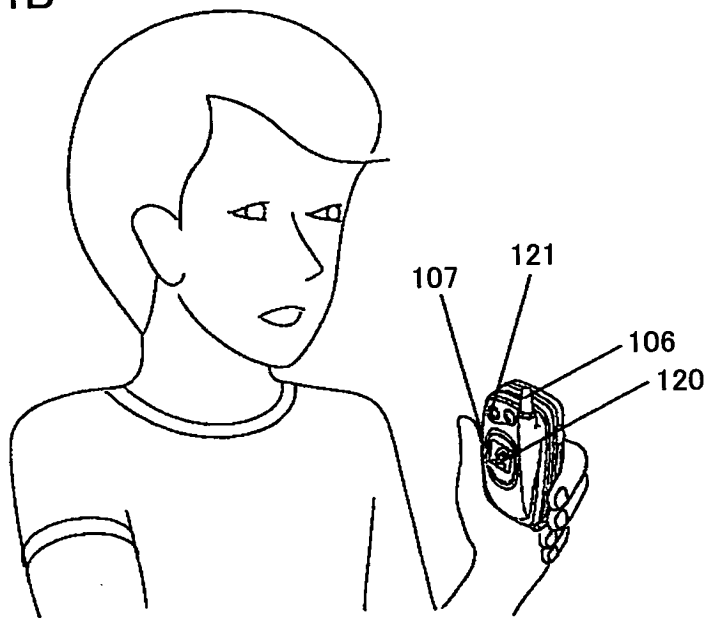
FIG.21B PRIOR ART